SEMINAR ZAVODA ZA TEORIJSKU FIZIKU

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Bicrossproduct construction versus Weyl-Heisenberg algebra

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Abstract:

Bicrossproduct construction is one of the ways to obtain the Hopf algebra from two given ones. It was firstly introduced in the case of the kappa-Poincare Hopf algebra. However if one doesn't want to consider the whole Hopf algebra and resigns from antipodes the same construction can be used for obtaining bialgebra from two given ones. Interestingly, this construction also works if one loses the notion of counit as well. Then we deal with a unital non-counital bialgebra as a result of this construction. The motivation for introducing that last case is to obtain (weak) coalgebra structure on the Weyl-Heisenberg algebra, which is not possible to be formulated as full bialgebra. In my seminar I will recall some of the definitions necessary for bicrossproduct contruction and also I will illustrate all the above mentioned cases on examples.

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